Gravatt, Dan

From: Gravatt, Dan
Sent: Monday, March 11, 2013 10:46 AM
To: Curry, Tim; Singletary, DeAndre; Tapia, Cecilia
Subject: FW: First cut at thermal contour image
Attachments: 2013_03_08_16_25_06_R_02gr_wcontours_ovly.jpg

Tim,

Thanks for this first draft – it gives me an idea of what we're up against in using this thermal data. As I said on the phone, the big red and yellow blob is the landfill gas flares outside the perimeter of the landfill. The area we are interested in, where the subsurface fire is ongoing, is basically bounded on three sides by the linear blue/white/green areas to the southwest of the gas flares. All of these areas are apparently below the blue contour value of 20C. We need to have temperatures mapped in this area, probably using a one-degree (or smaller) contour interval, to see if there are any small variations that might indicate the fire area. Can we assign everything over about 20C one color so that it's easier to focus on the color variations below 20C in the fire area? Can we also limit the spatial coverage of the figure to just the fire area itself, to help simplify the data?

Thanks,
Daniel R. Gravatt, PG
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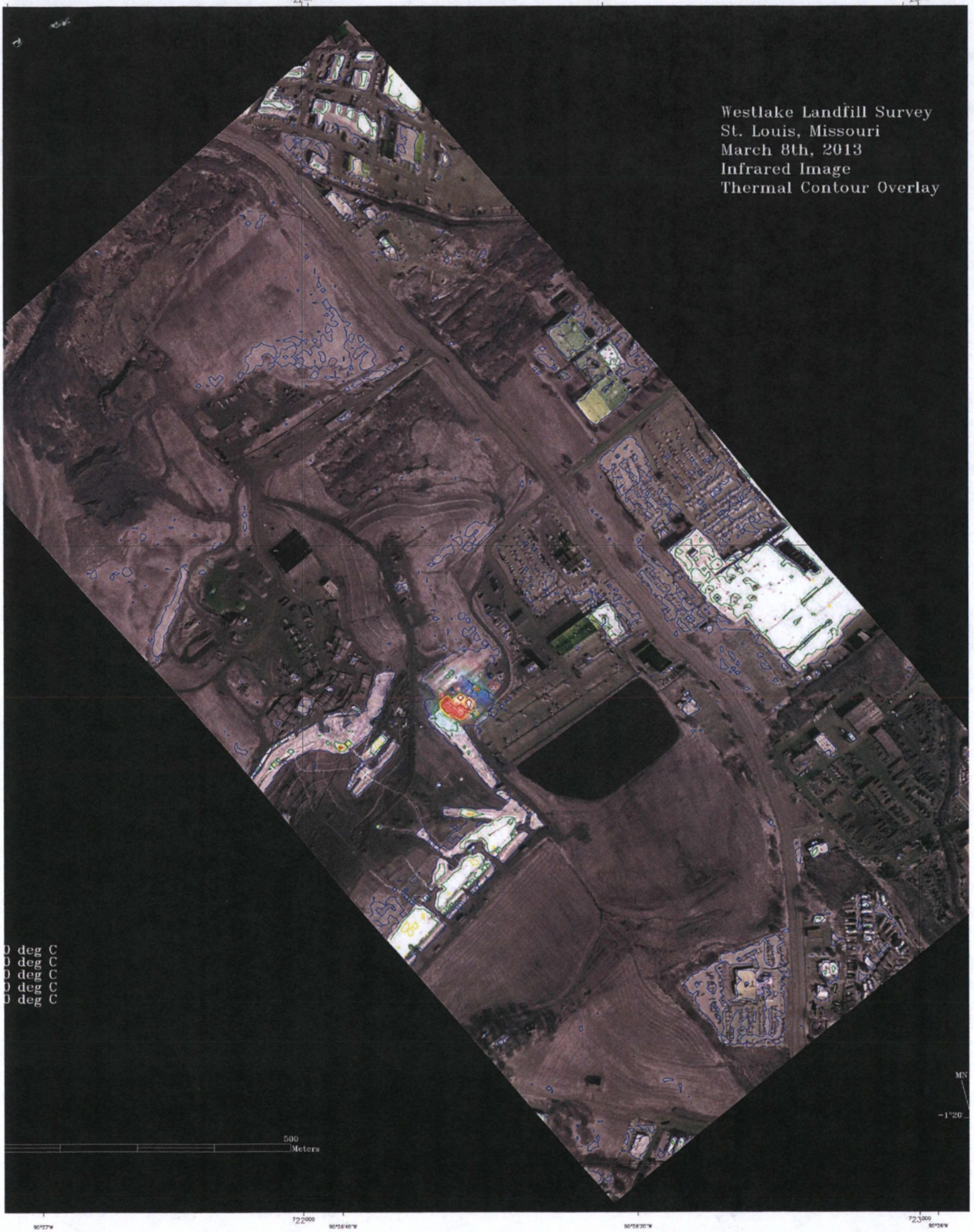
Principles and integrity are expensive, but they are among the very few things worth having.

From: Curry, Tim
Sent: Monday, March 11, 2013 10:01 AM
To: Gravatt, Dan
Cc: Thomas, Mark J.; Cardarelli, John; Kudarauskas, Paul
Subject: First cut at thermal contour image

Dan,
I am attaching the first draft of a thermal contour image for the landfill area. There seems to be some minor issues with converting the image from the GIS data processing package we use, ENVI, and a standard .jpeg image.
First it seems the contour line colors lose their contrast and I may have to chose some colors that are further apart on the color chart.
Second the contour levels were chosen to start at levels with higher thermal signature than most of the scene and then incrementing each contour by 10 degrees Celsius. The blue and green levels you will see are about the temperature of roofs in the area that have been in the sunlight since sunrise that morning. The yellow, orange and red areas represent areas that have elevated temperature above even the warm roofs. There is clearly some type of heater/burner at or near the center of the image and its heat signature overwhelms the nearby scene. There are also some small areas right on the landfill that show high temperatures and those will be well known by people familiar with the site. If you are looking for subsurface conditions that will show at the surface then the first contour, the blue, level over plain landfill area will be the first indication. The green would show a more significant thermal rise, and so on.

Take a look and let me know what you think. If there are some things you'd like to change just give me a call.


Westlake Landfill Survey
St. Louis, Missouri
March 8th, 2013
Infrared Image
Thermal Contour Overlay
0 deg C
0 deg C
0 deg C
0 deg C
0 deg C
500
Meters
MN
-1°20'
90°27'W
90°26'40"W
90°26'20"W
90°26'W
722000
723000